CLAIMS

1. Abrasive article, comprising:

(a) at least about 30% of the total particulate volume is provided by abrasive particles, comprising particles of sintered sol gel alumina.

(b) friable filler particles, and

(c) a resinous bond in which the particles are mounted and held.

2. An abrasive article according to Claim 1 in which at least 10% of the volume of the abrasive particles in the article is supplied by sintered sol gel alumina particles.

3. An abrasive article according to Claim 2 in which at least 50% of the volume of the abrasive particles in the article is supplied by sintered sol gel alumina particles ~~as in Claim 2.~~

4. An abrasive article according to Claim 1 in which the sol gel alumina particles are seeded sol gel alumina particles.

5. An abrasive article according to Claim 1 in which up to 70% of the volume of the abrasive particles is provided by particles of fused or sintered alumina, silicon carbide, fused or sintered zirconia, fused or sintered alumina-zirconia, diamond or CBN.

6. An abrasive article according to Claim 1 in which the friable filler particles provide from about 20 to 70% of the volume of particulate matter in the article.

7. An abrasive article according to Claim 1 in which the friable filler particles are selected from hollow bubbles of a metal oxide, an organic polymer or a glass; friable particles of a silicate or alumina silicate; and foamed or solid glass or organic polymer particles.

8. An abrasive article according to Claim 1 in which the friable filler particles are selected from aluminum oxide bubbles, zirconia oxide bubbles, glass bubbles, and vitrified alumina-silicate bubbles or pellets.

9. An abrasive article according to Claim 1 in which the resin bond is provided by a phenolic resin.

10. An abrasive article comprising:

(a) from about 50 to 90% by volume of the particulate content is provided by abrasive particles comprising from about 20 to about ~~100~~ 95% of seeded sol gel alumina particles based on the volume of particulate matter in the article sintered;

(b) from about 20 to about 70% of alumina bubbles based the volume of particulate matter in the article; and

(c) a phenolic bonding resin.

11. An abrasive article according to Claim 10 in which the sol gel alumina particles each comprise a multitude of crystallites having a diameter of from about 0.4 micron or less.

12. An abrasive article according to Claim 10 in which up to about 80% by volume of the abrasive particles are provided by fused alumina particles.

13. An abrasive article according to Claim 10 in which the alumina bubbles have a mesh size of from about 10 to about 200 mesh.

14. An abrasive article according to Claim 1 in the form of an abrasive wheel having a substantially uniform structure throughout.

15. An abrasive article according to Claim 10 in the form of an abrasive wheel having a substantially uniform structure throughout.

16. An abrasive article according to Claim 11 in the form of an abrasive wheel having a substantially uniform structure throughout.

17. A method of forming an abrasive article which comprises:

A. forming a uniform mixture comprising:

(a) at least about 30% of the total particulate volume is provided by abrasive particles, comprising at least about 30% of the total particulate volume of particles of sintered sol gel abrasive;

(b) % friable filler particles; and

(c) % a resinous bond in which the particles are mounted and held;

B. shaping the mixture into that of the desired article; and

C. curing the resin bond.

18. A method of forming an abrasive article which comprises:

A. forming a uniform mixture comprising:

(a) abrasive particles comprising from about 20 to about 80% of the volume of particulate matter in the article of sintered, seeded sol gel alumina particles;

(b) from about 20 to about 70% of the volume of particulate matter in the article of alumina bubbles; and

(c) a phenolic bonding resin.

B. shaping the mixture into the form of the desired article; and

C. curing the resin bond.